

Botulism from ready-made food

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Abstract

Botulism is a fatal illness caused by the botulinum toxin produced by *Clostridium botulinum*. This report describes two cases of botulism linked to ready-to-eat "manti" from vacuum-sealed pouches. Both patients, a 54-year-old woman and a 54-year-old man, experienced symptoms including diplopia, blurred vision, dysphagia, and respiratory difficulties after consuming the contaminated food. Both cases were diagnosed promptly and treated with botulism antitoxin, leading to significant symptom improvement and recovery. These cases highlight the need for awareness of botulism risks associated with modern food packaging and emphasize the importance of early diagnosis and treatment.

Keywords

Clostridium Botulinum, Neurotoxin, Ready-Made Foods, Antitoxin, Vacuum-Sealed Packaging

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Introduction

Botulism is a flaccid paralysis syndrome caused by botulinum neurotoxin (BoNT) produced by *Clostridium botulinum* (*C. botulinum*). However, canned foods are generally shown as the source of botulism, in our two cases, ready-made “manti” sold in vacuum-sealed pouches was determined to be the source of the disease. Therefore, it was considered worthy of presentation. Informed consent forms were obtained from the patients.

Case Report

A 54-year-old female patient with no known chronic disease came to the emergency room with complaints of having a single black stool, diplopia, blurred vision, difficulty swallowing, and difficulty breathing, which started after eating ready-made manti that she bought from the market with her husband the day before. The patient, who was diagnosed with botulism clinically by infectious diseases consultation in the emergency department, was administered botulinum anti-toxin obtained from the public health institution. No pathological findings were detected in brain imaging, and the patient was admitted to the anesthesia intensive care unit. EEG and EMG examinations performed during hospitalization were normal, and abdominal CT was reported as ‘edema and reactive lymph nodes in the small bowel mesentery, this finding is non-specific and supports infective processes.’ The patient’s airway was kept open, and on the 10th day of hospitalization, the complaints of diplopia, diarrhea, and difficulty breathing completely regressed, and the difficulty in swallowing partially improved. The patient, who was transferred to the infectious diseases ward, was able to swallow solid foods after being monitored in the ward for seven days and was discharged with the recommendation of outpatient clinic control.

After eating ready-made “manti,” a 54-year-old male patient, who was the spouse of the first case, presented to the emergency department with complaints of green diarrhea three times, fatigue, double vision, blurred vision, and difficulty swallowing. There was no known history of chronic disease. The patient, who was initially diagnosed with botulism in the emergency department, was administered botulinum anti-toxin obtained from the public health institution. No pathology was detected in brain imaging. The patient was admitted to the infectious diseases ward, and no other clinical or laboratory diagnosis was considered during consultations with ophthalmology and neurology specialists during his stay in the ward. The patient, who was fed soft food, was initially given blended food and later transitioned to solid foods. The patient, who experienced mild swallowing difficulties, was discharged at the end of the 14th day with a recommendation for outpatient follow-up.

Discussion

Botulism is a fatal illness caused by the botulinum toxin produced by *C. botulinum*. This toxin leads to flaccid paralysis by inhibiting the release of acetylcholine at nerve endings, which can result in serious complications such as respiratory failure [1].

The formation of botulinum toxins in foods is usually associated with improperly processed or stored canned foods. However, in recent years, despite modern packaging and storage techniques,

attention has been drawn to the risk of botulinum, especially in vacuum-packed or bagged foods [2]. This situation shows that hygienic conditions are of critical importance in the production, packaging, and storage processes of foods. In our cases, the determination of “manti” sold in sealed bags as the cause of botulinum is important in terms of showing the risk that such foods carry. Diagnosis of botulism can be made through careful evaluation of the patient’s clinical symptoms and history. It is particularly important to keep botulism in mind as a differential diagnosis in patients with a history of consuming ready-made foods. Although gastrointestinal symptoms are observed in many botulism cases, neurological signs are more definitive indicators of the disease. Therefore, promptly diagnosing botulism in patients with double vision, blurred vision, difficulty swallowing, and respiratory problems can help reduce mortality rates [3]. Additionally, laboratory tests and radiological examinations may often be nonspecific; thus, rapid diagnostic processes that align with clinical findings are crucial.

From a treatment perspective, the early administration of antitoxins that neutralize botulinum neurotoxin significantly improves patients’ prognosis. In our cases, it was observed that symptoms greatly diminished with antitoxin treatment. Intensive care monitoring plays a critical role in managing life-threatening symptoms, especially those like difficulty swallowing and respiratory distress. Since complications such as respiratory failure can develop, these patients must be monitored in units equipped to provide mechanical ventilation if needed [4]. Therefore, our first case, who developed respiratory failure, was followed in the intensive care unit until shortness of breath improved, but mechanical ventilation was not required. Thanks to the antitoxin, the patient’s complaints of diplopia and difficulty swallowing also improved, and the blurred vision was completely resolved.

These cases are an important warning that foods sold in sealed bags may also carry a risk of botulism. The food industry must strictly comply with hygiene standards, and consumers must pay attention to the rules for storing and consuming such foods. In addition, rapid interventions for public health in such cases can play a critical role in preventing possible outbreaks. Due to these cases, the provincial Health Directorate and the provincial Agriculture and Forestry Directorate were informed to reach the market selling the food and prevent possible new cases.

Conclusion

Botulism is a rare and potentially fatal illness. In patients with a history of consuming ready-made foods, botulism should be considered in the differential diagnosis. Rapid diagnosis and early treatment play a critical role in the recovery of patients. Botulinum antitoxin accelerates the recovery process by neutralizing the effects of the toxin.

Scientific Responsibility Statement

The authors declare that they are responsible for the article’s scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical

standards.

Conflict of interest

The authors declare that there is no conflict of interest.

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